

# NOAA Climate Service

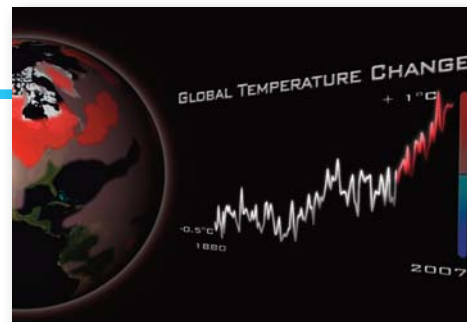
## Proposed to Meet Essential National Needs

*NOAA's strong commitment to scientific integrity and to advancing science while strengthening product development and delivery remain steadfast as NOAA adapts to a changing nation and a changing world.*

Jane Lubchenco, Ph.D.

Under Secretary of Commerce for Oceans and Atmosphere

Administrator, National Oceanic and Atmospheric Administration (NOAA)



Across the nation, people are asking how to best prepare their lives, communities and businesses for climate change. Recognizing the urgency of these requests, Commerce Secretary Gary Locke and Under Secretary Jane Lubchenco announced the intent to establish the NOAA Climate Service.

As the *Global Climate Change Impacts in the United States* 2009 report indicates, climate-related impacts are already evident and expected to increase. Signs of change abound: Sea-level rise. Longer growing seasons. Increases in heavy downpours. Droughts. Extended ice-free seasons and more.

### A Single Point of Entry

NOAA already responds to millions of annual requests for climate information. The NOAA Climate Service would bring together longstanding NOAA capabilities -- Nobel Peace Prize award-winning researchers, and assessments, observations, predictions, training and vital on-the-ground service delivery -- into a single, more coordinated office.

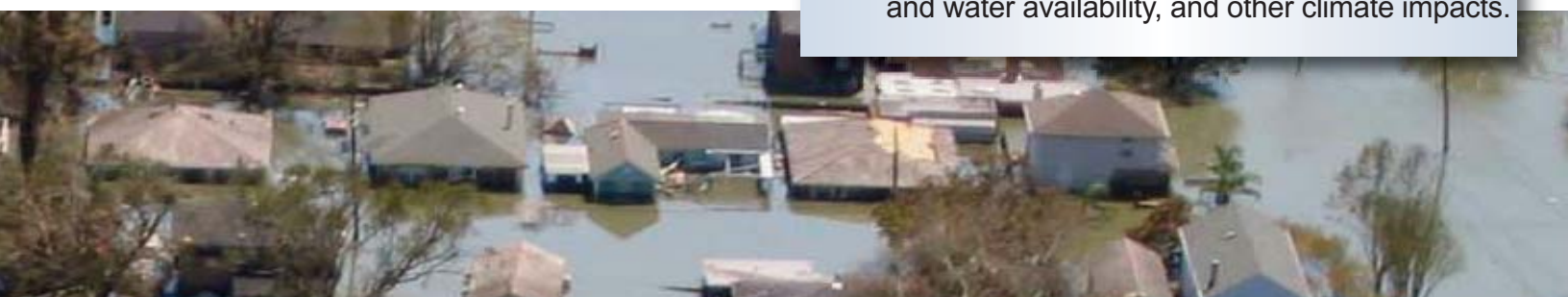
Planning for the reorganization is being informed by substantial input from NOAA employees, our national, regional and academic partners, and advisory bodies such as the NOAA Science Advisory Board, the

National Academies and the National Academy of Public Administration.

Built on a foundation of strong, trusted science, and working closely with our federal, state, regional, local, academic and private sector partners, the new climate office will help NOAA be an even stronger partner — providing the transparent, reliable, timely and easily accessible information that America requires.

### Imagine a world where...

- ▶ Your home is flood-ready because your community had reliable information about the changing likelihood of extreme precipitation.
- ▶ Your home is powered by efficient, reliable, renewable energy sources supported by a variety of environmental forecasts such as Wind Surface Forecasts for wind turbines.
- ▶ Our nation is more secure because decision makers have reliable information about vulnerabilities due to coastal sea-level rise, climate-related health issues, changes in food and water availability, and other climate impacts.





***NOAA helps people and small businesses, entire industries and governments at all levels make wiser choices in a changing world.***

### Assessing Local Climate Forecast Needs

Sprawling over varying climatic conditions, some of the world's premium coffee beans grow on the slopes of Hawaii's Mount Hualalai and Mauna Loa. NOAA and local coffee farmers are collaborating on a pilot project as part of the Pacific Climate Information System. They are evaluating coffee production related to temperature and rainfall fluctuations, investigating the value of forecasts to coffee beans' quality and quantity, and testing approaches to irrigation, fertilizer and insecticide use. This information will help NOAA better meet farmers' climate forecast needs.

### Identifying Climate and Health Risks

After measuring emissions from nearly 1,000 ships in the Gulf of Mexico, NOAA and other scientists estimate that shipping worldwide can emit as much soot (black carbon) and other particle pollutants as 50 percent of the world's cars. Since 70 percent of commercial shipping occurs near the coast, this is a hazard to coastal communities.

Premature deaths have been linked to the pollutants. Soot also acts to warm the climate. To counter risks, shipping companies, engine manufacturers and others are turning to NOAA to inform sound adaptation and mitigation strategies.

### Adapting to Coastal Challenges

In Alaska, winter storms along the Bering Sea coast are severely eroding native villages. Because of climate change, sea ice that once buffered this coastline is disappearing. To prepare for future changes, the Regional Integrated Sciences and Assessments team works with communities to factor climate change projections into adaptation strategies.

Alaska Sea Grant, part of the NOAA-administered National Sea Grant network, reached out to more than 100 coastal zone managers and engineers who advise homeowners, businesses and governments on where to build.

### Combating Drought

U.S. drought losses average \$6 -\$8 billion yearly. In 1988, they reached \$40 billion. The NOAA-led interagency National Integrated Drought Information System works to mitigate such losses.

First requested by the Western Governors Association, this system helps governments and other decision makers prepare for fire seasons, inform agricultural choices and assess long-term risks to water supply. The Department of Agriculture relies on the system to insure crops. A major online tracking tool, the North American Drought Monitor,

depicts severe drought across borders. Regional Climate Centers and Regional Integrated Sciences and Assessments teams provide data and expertise to assess economic and environmental impacts.



Lake Powell reservoir. (top) June 29, 2002;  
(bottom) December 23, 2003.

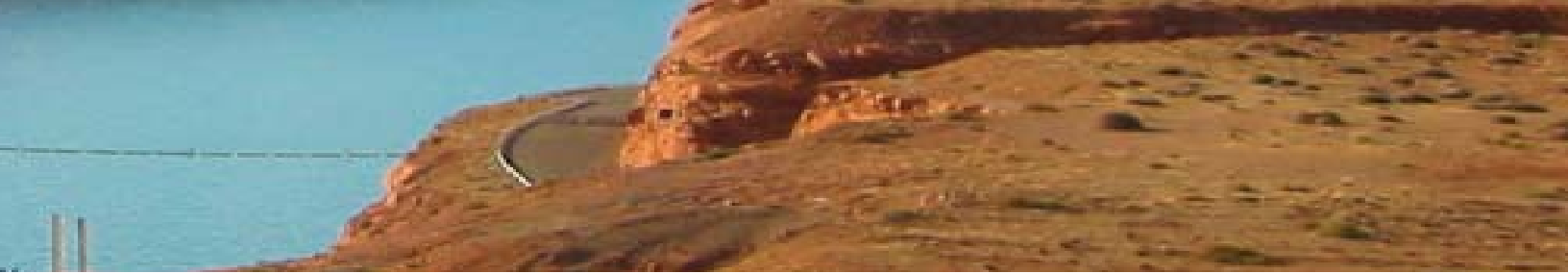
### Tracking Ocean Acidification

Ocean acidification, which is caused by human-generated CO<sub>2</sub> emissions, is expected to have profound impacts on marine ecosystems. The increased acidity can dissolve shells of some species, threatening, for example, commercial oyster hatcheries in the Northwest — a \$110 million a year industry.



Growing premium coffee.





## Promoting a Greener, More Robust Economy

Much of the U.S. economy is significantly affected by weather and climate. As NOAA's new office develops innovative climate products, the value to our economy and environment will grow, promoting a greener, more robust economy. For example, renewable energy, such as solar and wind production, is sensitive to changes in weather and climate. The office will provide information critical to supporting this sector and other emerging growth areas.

There also is potential for new jobs. A private sector industry spawning jobs could emerge around products generated by the NOAA Climate Service, much like the private sector weather industry evolved around NOAA's National Weather Service.



*Acidification can threaten oysters.*

Washington are developing a forecast system that will determine acidification at local scales, providing hatchery managers with information vital to adapting to changing conditions.

## Mapping Flood Risks

NOAA's detailed flood maps help communities protect life and property and reduce flood losses. Working with FEMA, the U.S. Geological Survey and the State of North Carolina, NOAA augmented its Advanced Hydrologic Prediction Service to help emergency managers, regional authorities and others better address potential climate extremes.

NOAA is expanding the integration of detailed flood maps and timely river forecast warning services nationwide. The maps require high resolution terrain data, which are increasingly more affordable and accessible through facilities such as the West Virginia GIS Technical Center.



*Flooding in New Orleans, 2005.*

Using recent mooring and satellite observations and new ocean tracking products, scientists at NOAA's Pacific Marine Environmental Laboratory and the University of

## Supporting Vital Economic Decisions

Weather forecasts tell us how warm or cold our communities will be over the next week or two. However, there is even greater value in understanding trends and knowing when temperatures might deviate sharply from the norm.

NOAA's National Digital Forecast Database provides such specific forecast information in useful forms for the over 100,000 people and industries that download information every day. Power companies use the information to manage production and cut energy costs.

Across New York State, NOAA and Cornell University collaborate through the Northeast Regional Climate Center on Frost/Freeze programs that support local agricultural economies. Growers use Frost/Freeze data to mitigate losses, which help keep fresh produce prices down at the supermarket.



*Frozen apples.*


NOAA HOME WEATHER OCEANS FISHERIES CHARTING SATELLITES CLIMATE RESEARCH COASTS CAREERS

**NOAA CLIMATE SERVICE**  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Development Prototype

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**An Upwelling Crisis: Ocean Acidification**

Featured Article, Thu, Oct 15th, 2009  
by Caitlyn Kennedy  
In the summer of 2007, as oyster growers and hatchery managers in Washington state were experiencing yet another failed oyster harvest, Dr. Richard Feely set off on a research cruise to find out if the seawater itself was the culprit...  
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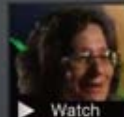
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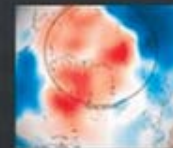

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## NOAA's new [www.climate.gov](http://www.climate.gov) portal offers easy, timely access to:

- ▶ An interactive "climate dashboard" enabling users to see a range of constantly updating climate datasets such as temperature and carbon dioxide over adjustable time scales.
- ▶ Details about NOAA data products with links to the sources of comprehensive datasets and explanations of NOAA and other agency products.
- ▶ *ClimateWatch*, an online magazine highlighting new climate research, explained by the scientists themselves, through videos, articles and images.
- ▶ Educational resources, including lesson plans, games and interactive media.
- ▶ Easily understood facts and presentations about climate science and climate impacts.

### Web Addresses:

- ▶ NOAA Climate Service Information ([www.noaa.gov/climate](http://www.noaa.gov/climate))
- ▶ NOAA Climate Portal ([www.climate.gov](http://www.climate.gov))
- ▶ Global Climate Change Impacts in the United States (<http://www.globalchange.gov/usimpacts>)
- ▶ Climate Literacy: The Essential Principles of Climate Sciences ([www.noaa.gov/climateliteracy](http://www.noaa.gov/climateliteracy))

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